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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/062,758	01/29/2002	Steven B. Elgee	10013857-1	2415

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EXAMINER
LIANG, LEONARD S

ART UNIT	PAPER NUMBER
2853	

DATE MAILED: 04/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/062,758	Applicant(s) ELGEE ET AL.	
	Examiner Leonard S Liang	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02/03/03* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,13-22,24-27 and 29-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11, 13-22, 24-27, and 29-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☒ The proposed drawing correction filed on *03 February 2003* is: a)☒ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 1-2, 5, 8-11, 13-17, 19-22, 24-27, and 29-41 are rejected under 35 U.S.C. 102(e) as being anticipated by Meyers et al (US Pat 6463674).

Meyers et al discloses:

- {claim 1} An inkjet mechanism (column 2, lines 2-5); a media support (figure 3, reference 30); a bi-furcated carriage which scans an inkjet printhead across the printzone, a first portion of the carriage located on a first side of the media when in the printzone, a second portion of the carriage being located on a second side of the media when in the printzone (figure 3; bi-furcated carriage naturally suggested in view of column 1, lines 30-36, column 6, lines 37-43); a bi-furcated heating element supported by the carriage, a first portion of the heating element being carried by the first portion of the carriage, a second portion of the heating element being carried by the second portion of the carriage, the first and second heater elements being maintained in face-to-face relation across the print zone (figure 3, reference 141, 151; column 1, lines 30-36; column 6, lines 37-43; limitations naturally suggested)

expressly taught

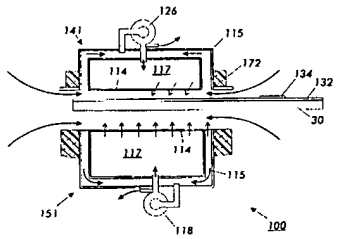


FIG. 3

- {claim 2} microwave heating element (column 1, line 29)
- {claim 5} radio frequency heating element (column 1, lines 54-56)
- {claim 8} a stationary blower producing an airflow directed at media when in the printzone (figure 3, reference 126)
- {claim 9} radio frequency applicator (as taught in claim 5)
- {claim 10} microwave applicator (as taught in claim 2)
- {claim 11} the printhead directs ink droplets into the printzone and onto the media, and the heating element creates a heat zone at a surface of the media
- {claim 13} the first and second heating element portions define a gap therebetween, the gap comprising a heat zone generated by the heating element
- {claim 14} an inkjet printing mechanism; a printzone (column 2, lines 1-10); a first carriage located on a first side of the printzone, the first carriage supporting an inkjet printhead and a first heater element portion; a second carriage located on a second side of the printzone, the second carriage holding a second heater element portion, the first and second heater element portions forming a heater element and being maintained in face-to-face opposition across the printzone (figure 3; column 1, lines 26-36; the first and second carriages are naturally suggested)
- {claim 15} the print media in the printzone has a print surface exposed to the printhead to receive ink therefrom, and has an opposing surface opposite the print surface (column 2, lines 1-10; figure 3, reference 134)
- {claim 16} the first side of the printzone faces the media print surface and wherein the second side of the printzone faces the media opposing surface

- {claim 17} the inkjet printhead projects ink droplets into the printzone as print imaging on media when in the printzone, the print imaging receiving heat energy from the heater element
- {claim 19} the first and second heater element portions cooperatively form a microwave applicator (naturally suggested in view of figure 3; column 1, line 29)
- {claim 20} the printing mechanism synchronously scans the first carriage and the second carriage to maintain a selected alignment therebetween (naturally suggested by column 1, lines 26-35; column 6, lines 37-44)
- {claim 22} A method of applying print imaging by ink droplet deposition on media and drying the print imaging (column 2, lines 1-10); reciprocating a first carriage across a printzone; projecting from the first carriage ink droplets as the print imaging; projecting from a first heater element on the first carriage radiant energy applied as heat energy to the media (column 1, lines 26-35; figure 3, reference 141); synchronously scanning a second carriage relative to the first carriage, the second carriage holding a second heater element cooperative with the first heater element to generate and apply the heat energy to the media, the first and second carriage being maintained in face-to-face relation with the media interposed therebetween (figure 3, reference 15; synchronously scanning a second carriage naturally suggested in view of column 1, lines 26-36; column 6, lines 37-44)
- {claim 24} the first and second heater elements comprise a microwave heater (as taught in claim 19)
- {claim 25} the first and second heater elements comprise an RF heater (as taught in claim 5)
- {claim 26} controllably advancing media in a feed direction through the printzone (column 1; column 2, lines 1-10; limitations naturally suggested in disclosed feeding systems
- {claim 27} a printing method; placing media in a printzone for print imaging; reciprocating a first carriage across the printzone; projecting from the first

carriage ink droplets as the print imaging; projecting from a first heater element on the first carriage radiant energy applied as heat energy to the media (naturally suggested in view of column 1, lines 27-36; column 2, lines 1-10); synchronously scanning a second carriage relative to the first mentioned carriage, the second carriage holding a heater element cooperative with the heater on the first carriage to apply the heat energy to the media, the first and second carriage being maintained in face-to-face relation with the media interposed therebetween (naturally suggested in view of figure 3, reference 141, 151; column 1, lines 25-36)

- {claim 29} the first and second heater elements comprise a microwave heater (as taught in claim 19)
- {claim 30} the first and second heater elements comprise an RF heater (as taught in claim 25)
- {claim 31} a printing method; applying ink having an evaporable component to a print media (column 1 lines 30-36); and thereafter, moving a heat zone across the media to accelerate evaporation of the evaporable component (column 2, lines 1-10); the heat zone being generated by cooperative first and second heating elements moving synchronously and relative to the print media and cooperative to produce the heat zone, the first and second heating elements being maintained in face-to-face relation with the print media interposed therebetween (naturally suggested in view of figure 3, reference 141, 151; column 1, lines 25-36)
- {claim 32} the moving comprises scanning the first and second heating elements across the print media (naturally suggested in view of figure 3, reference 141, 151; column 1, lines 25-36)
- {claim 33} the applying comprises scanning a printhead across the media (column 1, lines 30-36)
- {claim 34} generating the heat zone using microwave heating produced cooperative by the first and second heating elements (naturally suggested in view of figure 3, reference 141, 151; column 1, line 29)

- {claim 35} generating the heat zone at opposing surfaces of the media (figure 3, reference 141, 151)
- {claim 36} generating the heat zone from RF heating produced cooperative by the first and second heating elements (as taught in claim 5)
- {claim 37} advancing the media through the printzone between each of a series of the applying and the moving (naturally suggested in view of column 1, lines 10-36)
- {claim 38} An inkjet printing mechanism; means for reciprocating a carriage relative to a printzone; printing means for applying print imaging to media in the printzone and supported by the carriage means (column 1, lines 30-36); means for applying heat energy to the media and supported by the carriage means, the means for applying heat energy being bifurcated and including cooperative first and second heater elements, the first heater element being positioned at a first side of the media and the second heater element being maintained in face-to-face opposition therewith at a second side of the media (figure 3, reference 141, 151)
- {claim 39} microwave energy source (as taught in claim 2)
- {claim 40} applying heat energy comprises an RF energy source (as taught in claim 5)
- {claim 41} the printing means comprises an inkjet printing device projecting ink droplets therefrom (column 1, lines 30-36; column 2, lines 1-10)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 3-4, 18, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers et al (US Pat 6463674) in view of Carreira et al (US Pat 5220346).

Meyers et al discloses:

- {claim 3} an inkjet printing mechanism (as taught in claim 1)
- {claim 4} the heat zone scans synchronously with the carriage (naturally suggested by Meyers et al in view of column 1, lines 30-36; column 6, lines 37-43)
- {claim 18} An inkjet printing mechanism (as taught in claim 14); first heater element portion comprises a microwave energy source (as taught in claim 2);
- {claim 21} An inkjet printing mechanism (as taught in claim 20); the heating element is a microwave heating element (as taught in claim 2)

Meyers et al differs from the claimed invention in that it does not disclose:

- {claim 3} the microwave heating element includes a bi-furcated waveguide spanning the first portion and the second portion of the heating element and defining a heat zone therebetween
- {claim 18} the first heater element portion comprises a first portion of a waveguide; the second heater element portion comprises a microwave load and a second portion of a waveguide; the first and second waveguide portions together forming a waveguide directing energy from the source to the load; the printzone occupies space between the first portion of the waveguide and the second portion of the waveguide
- {claim 21} at least one of the first carriage and the second carriage holding a microwave load and the other one of the first carriage and the second carriage supporting a microwave source

Carreira et al discloses:

- {claim 3} the microwave heating element includes a bi-furcated waveguide spanning the first portion and the second portion of the heating element and defining a heat zone therebetween (figure 7A, reference 13; column 10, lines 61-68)

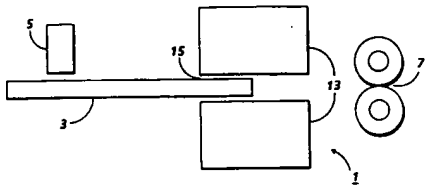


FIG. 7A

- {claim 18} the first heater element portion comprises a first portion of a waveguide; the second heater element portion comprises a microwave load and a second portion of a waveguide; the first and second waveguide portions together forming a waveguide directing energy from the source to the load; the printzone occupies space between the first portion of the waveguide and the second portion of the waveguide (figure 7A, reference 3, 13, 15; column 10, lines 61-68; microwave source and load are inherent to waveguide)
- {claim 21} holding a microwave load and supporting a microwave source (figure 7A, reference 13; column 10, lines 61-68; microwave source and waveguide are inherent to waveguide)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Carreira et al in view of Meyers et al so that there is a waveguide directing microwave energy from a source to a load. The motivation for the skilled artisan in doing so is to gain the benefit of enabling good print quality and minimal showthrough and strikethrough (column 4, lines 6-9). The combination naturally suggests a first carriage and second carriage with one holding a microwave load and the other holding a microwave source.

3. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers et al (US Pat 6463674) in view of Woo et al (US Pat 5645904).

Meyers et al discloses:

- {claim 6} An inkjet printing mechanism (as taught in claim 5)
- {claim 7} the heat zone scans synchronously with the carriage (as taught in claim 4)

Meyers et al differs from the claimed invention in that it does not disclose that the radio frequency heating element includes as said first portion first electrodes and as said second portion second electrodes, a heat zone being positioned therebetween.

Woo et al discloses, with respect to claim 6, that the radio frequency heating element includes as said first portion first electrodes and as said second portion second electrodes (figure 5, reference 62, 64; column 6, lines 14-18)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Woo et al into the invention of Meyers et al so that the radio frequency heating element includes as said first portion first electrodes and as said second portion second electrodes. The motivation for the skilled artisan in doing so is to gain the benefit of efficient heating (column 1, lines 16-18). The combination naturally suggests that a heat zone is positioned between electrodes.

4. Claims 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Meyers et al (US Pat 6463674) in view of Ort (US Pat 4340893).

Meyers et al discloses, with respect to claim 42, an inkjet printing mechanism comprising a reciprocating printing device projecting ink droplets therefrom along a print swath, the print swath having a print swath height (figure 3; column 1, lines 10-36; column 6, lines 37-44; print swath height inherent to invention); a reciprocating bifurcated heating element projecting energy therefrom and applied as heat energy to media adjacent thereto along a heat swath height (naturally suggested in view of claim 3, column 1, lines 30-36); the bifurcated heating element including a first portion maintained at a first side of the print swath and a second portion maintained at a second side of the print swath in face-to-face opposition to the first portion (figure 3, reference 141, 151)

Meyers et al differs from the claimed invention in that it does not disclose the heat swath height being greater than the print swath height whereby print imaging produced by the ink droplets receives the heat energy through at least a first and second reciprocation of the heating element.

Ort discloses, with respect to claim 42, the heat swath height being greater than the print swath height whereby print imaging produced by the ink droplets receives the heat energy

through at least a first and second reciprocation of the heating element (figure 2, reference 33, 44, 45; it is clear from the figure that dryers are farther from the print surface than the face of the ink jet droplet emitter; looking at figure 2 from a vertical perspective, it is clear that the heat swath height is greater than the print swath height).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the teachings of Ort into the invention of Meyers et al so that the heat swath height is greater than the print swath height whereby print imaging produced by the ink droplets receives the heat energy through at least a first and second reciprocation of the heating element. The motivation for the skilled artisan in doing so is to gain the benefit of providing an ink which dries quickly on the record surface, but does not dry in the inkjet nozzle (column 1, lines 11-13).

Response to Arguments

5. Applicant's arguments with respect to claims 1-11, 13-22, 24-27, and 29-42 have been considered but are moot in view of the new ground(s) of rejection.

However, the examiner will address the applicant's arguments concerning combining Carreira et al with a scanning carriage, as the argument is seen to be pertinent to the new rejection above. The applicant submits that "The form of microwave heater taught by Carreira et al is stationary and necessarily of width sufficient to receive the width of the media...Incorporating the Carreira et al heater onto a scanning carriage with a resulting printer width substantially greater then the media width is undesirable...A stationary microwave heater cannot be simply mounted upon a printer carriage." Regardless of whether this argument was relevant to the original rejection, the examiner notes that in the new rejection, Meyers et al already suggests microwave heaters located on printing carriages. In this new rejection, Carreira is simply used to teach a waveguide directing energy from a source to a load. In the combination, the size of the heaters disclosed by Carreira et al is irrelevant, it is the waveguide principle being taught that is important.

Final Rejection

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard S Liang whose telephone number is (703) 305-4754. The examiner can normally be reached on 8:30-5 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on (703) 308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7724 for regular communications and (703) 308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

lsl LSL
April 10, 2003

Judy Nguyen
JUDY NGUYEN
PRIMARY EXAMINER